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~~31~~ The system of Claim ~~30~~ wherein the rapidly deployable air bag is constructed from polyethylene material.

REMARKS

Reconsideration and allowance are respectfully requested in view of the foregoing amendments and the following remarks. Claims 1-4, 6, 9, 17-20, and 25-27 are currently pending in this application. New claims 30 and 31 are also pending.

General

The Examiner has declared that Claims 18-20 are allowable, if rewritten in independent form. This also applies to Claim 9, provided that the independent claim upon which it is based (i.e., Claim 1) is rewritten so as to overcome the Examiner's 35 U.S.C. §112 rejection.

Claims 17 and 25 have been rejected under 35 U.S.C. §012(b); Claims 1-4 and 7-9 have been rejected under 35 U.S.C. §112, second paragraph; Claims 1-4, 17, and 25-27 have been rejected under 35 U.S.C. § 102(e); and Claim 6 has been rejected under 35 U.S.C. § 103(a). Claims 5, 10-16, 21-24, and 28-29 have been withdrawn by the Examiner from consideration as being directed to a non-elected species. The Applicant respectfully traverses the Examiner's rejection of these claims. New Claims 30 and 31, which take into account the Examiner's remarks and cited art, have been added.

Rejections Based on § 112

The Examiner has rejected Claims 1-4 and 7-8 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention. More particularly, Claim 1 includes the phrase "at least one rapidly deployable air bag" in both the preamble and the body of the Claim, and Claim 6 includes the phrase "ultra-high molecular weight."

Claim 1 has been amended to delete the reference to "at least one rapidly deployable air bag" in the preamble, and Claim 6 has been amended to delete the phrase "ultra-high molecular weight" in order to render the claims definite and in condition for allowance. Claims 7-8 have been rewritten to include references to specific materials, and therefore should also be in condition for allowance.

These amendments should now place Claims 1-4 and 6-9 in condition for allowance (since Claims 2-4 and 9 were rejected solely on the basis of pendency from Claim 1).

Rejections Based on § 102

The Examiner has rejected Claims 1, 4, and 25-26 under 35 U.S.C. §102(e) as being anticipated by Genovese; these claims, with the addition of Claim 27, were also rejected under 35 U.S.C. §102(e) as being anticipated by Cho. Claims 17 and 25 stand rejected under 35 U.S.C. §102(e) as being anticipated by Faye, et al or Nitschke, et al, and

under 35 U.S.C. §102(b) as being anticipated by Caruso, et al. The Applicant respectfully traverses the Examiner's rejection of these claims.

Anticipation requires the disclosure in a single prior art reference of each element of the claim "arranged as in the claim." *Lindermann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 221 U.S.P.Q. 481, 485 (Fed. Cir. 1984) (citing *Connell v. Sears, Roebuck & Co.*, 220 U.S.P.Q. 193 (Fed. Cir. 1983)). Genovese, Cho, Faye, et al, Nitschke, et al, and Caruso, et al each fail on this point.

The Examiner asserts that Genovese discloses a system comprising an inflatable air bag, a gas generating system, deployment in response to proximate detection of a ballistic projectile, and a radar-based detection system. With respect to the air bag, the applicant's invention renders extremely rapid inflation desirable, in every case, in order to prevent a ballistic projectile from impacting upon personnel to be protected. However, Genovese teaches away from this concept by disclosing a human/animal restraint system and noting that "high-inflation rates are not necessary or even desirable in most of the applications contemplated for the present invention." See Genovese, Col. 3, lines 42-44. Further, Genovese teaches that the air bag material may be operationally dependent, fabricated from "polymers, natural rubber, woven fabrics, etc." See Genovese, Col. 5, lines 28-31. Thus, according to the teaching of Genovese, which invention is directed at restraining persons or animals in a "less-than-lethal" manner, it would be counter-intuitive to provide the most rapid inflation rate possible, along with an air bag which was capable

of stopping ballistic projectiles. Both the speed of inflation and the durability of the air bag material necessitated by the Applicant's invention are directly opposed to the application described in the Genovese reference.

The Examiner asserts that Genovese teaches deployment "in response to proximate detection of a ballistic projectile" in Col. 2, lines 33-36 of Genovese. While damage mitigation may be stated as an object of Genovese's invention, there is no teaching within the disclosure that asserts that an air bag may be deployed in response to detection of ballistic activity. Even the radar-based detection system is only referenced with respect to motion sensors for persons moving about. See Genovese, Col. 4, lines 41-43 and line 65 - Col. 5, line 6. The "motion sensor 81" illustrated in Genovese's Fig. 5 is obviously meant to detect the motion of persons, and not *ballistic* projectiles (i.e., no discrimination function exists). Further, there is no teaching within Genovese to determine whether motion is due to a person or a ballistic projectile.

Genovese, therefore, does not disclose a "projectile detection system," nor a "rapidly deployable air bag," nor a system which responds to "detection of the approach of a projectile in proximity to said person by said detection system." Since Genovese does not teach these three elements of the instant invention, Genovese cannot anticipate claims 1, 4, and 25-26 of the Applicant's invention.

With particular note respecting Claim 4, Genovese does not disclose a rapidly deployable air bag "interposed between said projectile and said person" in response

to "detection of the approach of a projectile in proximity to said person." With respect to Claim 25, Genovese further does not disclose a "destructive object detection system"; most of Genovese's disclosure deals with remote operation of the deployment system by radio, or using a negative-g switch which is energized when the system is deployed within the body of a ballistic projectile.

Cho teaches a system which is primarily used to minimize automobile collision damage. The Examiner asserts that Cho discloses an inflatable air bag, gas generating system, deployment in response to proximate detection of ballistic projectile, and a radar-based detection system including 8-20 Ghz. However, it can be shown that Cho also fails to disclose several elements of the instant invention.

The Examiner asserts that Cho discloses "deployment in response to proximate detection of a ballistic projectile" in Col. 7, lines 18-24. However, Cho actually teaches away from this aspect of the Applicant's invention, wherein it is noted that the "invention serves to minimize damage to other non-moving vehicle obstacles." Further, the different objects suggested by the disclosure for detection (e.g. pedestrians, animals, inanimate objects, plants, trees, etc.) do not move at the speed of a ballistic projectile.

The Examiner also asserts that Cho discloses a "radar-based detection system including 8-20 Ghz" in Col. 3, lines 34-40. This is incorrect. The disclosure describes transmitting and receiving signals at a rate "in the range of 1 to 1 billion samples per second." If this is the frequency of the radar, then the actual frequency range is 1 Hz

to 1 Ghz. If this is merely the sampling rate of the radar, then no frequency range is given or taught by Cho. In any event, neither of these teachings is equivalent to operating a radar system at a frequency of 8-20 Ghz.

Therefore, Cho fails to teach the elements of "deployment in response to proximate detection of a ballistic projectile" and "a radar-based detection system including 8-20 Ghz." Further, the entire idea of Cho's invention is to protect a vehicle, which is moving, from other obstacles in its path. The system is not designed, nor does it teach, protection of a person, relatively stationary, from the approach of a ballistic projectile. In other words, the Cho invention is incapable of deploying an air bag "in response to detection of the approach of a projectile in proximity to said person;" Cho is concerned with the activation of an air bag in proximity to a vehicle. This being the case, Cho does not anticipate Claims 1, 4, and 25-26.

The Examiner also asserts that Claims 17 and 25 are anticipated by Faye, et al or Nitschke, et al. However, the Examiner presents no specific support in these references for his assertion. After carefully examining the Faye, et al reference, in particular, Col. 5, lines 26-59, it can be seen that the invention described is totally dependent on measurement and frequency analysis of acceleration signals having a particular signature component which indicates that a vehicular crash is imminent. Of course, this deceleration signal profile is completely inapplicable to that of a ballistic projectile approaching a stationary object. Nitschke, et al describes a similar dependency

in Col. 5, line 14 - Col. 6, line 10. In both cases, the references fail to disclose a "projectile detection system" and a deployment system which operates in response to "detection of the approach of a projectile in proximity to said person." Since Faye, et al and Nitschke, et al fail to disclose these elements of the Applicant's invention, they cannot anticipate the invention.

Finally, the Examiner asserts that Caruso, et al anticipates Claims 17 and 25. Caruso generally teaches a method and system of detecting vehicle deceleration to provide a particular "oscillation value" to determine whether deployment of a restraint system is necessary. Such deceleration and oscillation signal components are not present in radar signal returns caused by the approach of a ballistic projectile. See Caruso, et al, Col. 3, line 37 - Col. 34, line 3. The use of accelerometers and signal sampling techniques taught by Caruso, et al are simply inapplicable to the Applicant's invention. Therefore, Caruso, et al also fails to teach the elements of a "radar-based projectile detection system," and a system which operates "in response to detection of the approach of a projectile in proximity to said person." Caruso, et al does not anticipate the Applicant's invention.

Rejections Based on § 103

The Examiner has rejected Claim 6 under 35 U.S.C. §103(a) as being unpatentable over Genovese in view of Khandhadia, et al. The Examiner notes that Genovese fails to disclose an air bag constructed of polyethylene. However, as is noted

above, Genovese also fails to disclose other elements of the Applicant's invention, including a "radar-based projectile detection system," a "rapidly deployable" air bag, and a system which operates "in response to detection of the approach of said projectile in proximity to said person." Thus, Khandhadia must supply these missing elements, along with a teaching to combine them with the Genovese reference, in order to render the Applicant's invention obvious.

As the Examiner notes, Khandhadia, et al does indeed teach an air bag constructed of polyethylene. However, there is no suggestion within Khandhadia, et al to combine the teachings therein with those presented by Genovese. The most general reference given to using the Khandhadia, et al invention is found in Khandhadia Col. 1, lines 14-15, wherein it is noted that the "present invention relates generally to inflatable occupant safety restraints in motor vehicles." The Genovese reference makes no mention of "nonazide gas generants", or any reference to unacceptable levels of NO_x upon air bag deployment. It should be noted that ". . . an Examiner cannot establish obviousness by locating references which describe various aspects of a patent applicant's invention without also providing evidence of the motivating force which would impel one skilled in the art to do what the patent applicant has done." See *Ex Parte Levengood*, 28 U.S.P.Q. 2d, 1300, 1301-02 (BPAI 1993).

Genovese and Khandhadia et al each fail to teach the elements of a "radar-based projectile detection system" in combination with a "rapidly deployable air bag,"

which operate as a system "in response to detection of the approach of said projectile in proximity to said person." Therefore, not only do the separate references of Genovese and Khandhadia, et al fail to teach specific elements of the Applicant's invention, they contain no teaching or suggestion to combine either reference with the other. Therefore, Claim 6 cannot be rendered obvious by the combination of the Genovese and Khandhadia et al references.

CONCLUSION

In view of the amendments provided to Claims 1 and 6-8, and further in view of the failure of the Genovese, Cho, Faye et al, Nitschke, et al, and Caruso, et al references to teach specific elements of the Applicant's invention, Claims 1-4, 9, 17-20, and 25-27 should now be in condition for allowance. In addition, since the Khandhadia, et al reference fails to contain any motivation to combine its teaching with that of Genovese, Claim 6 should also be in condition for allowance. New claims 30 and 31 should also be in condition for allowance since none of the cited art discloses an "anti-ballistic air bag" nor an air bag having a front surface and a rear surface which "slows and redirects the projectile."

The art made of record, but not relied upon by the examiner, has been reviewed. However, it is not believed to be as pertinent to the examination of the application as the

Serial Number: 08,855,895
Inventor: David S. Stephens et al.
Atty. Docket No. 26552.00028

cited art. Any deficiency in fees may be corrected by charging deposit account number 10-0447 directly.

If the Examiner believes further limitations or changes are necessary to support allowance, a telephone conference is earnestly solicited by the undersigned.

Respectfully submitted,
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